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XIII. *De intenso Frigore Mensibus Januario*  
 1767 ac 1768, & Novembri 1770, ob-  
*servato* Franequeræ, *Auctore* J. H. Van  
 Swinden, *Philos. Profess. in Academia*  
*Franeker. Societ. Harlemono-Hollandicæ*  
*Socio.*

**I**N Transactionum Philosophicarum, tomis LVIII.  
 & LIX. vidi nuperrime, illustrissimos horum  
 Actorum Collectores observata quædam inseruisse  
 circa acerbum frigus anni 1768: cum vero exinde  
 liqueat hujusmodi annotationes usu non carere, in  
 medium proferam quæ, vel propriis vel alienis ob-  
 servationibus, in patria institutis, ad notitiam meam  
 pervenerunt.

Anno 1767, peritissimus telescopiorum catoptri-  
 corum artifex Vander Bild, thermometrum Fahren-  
 heitianum observavit,

|          |       |              |       |      |
|----------|-------|--------------|-------|------|
| Jan. 6°. | h. 8  | A. M. ad gr. | . . . | 16   |
|          | h. 10 | P. M.        | . . . | 2    |
| 7°.      | h. 7½ | A. M.        | . . . | — 2  |
|          | 12    | . . .        | . . . | + 12 |
|          | 7     | P. M.        | . . . | 5    |
|          | 9     | . . .        | . . . | 7    |
| 8°.      | 7½    | A. M.        | . . . | 12   |

Minima altitudo fuit ad minimum — 2, nam mercurius totus intra bulbum erat reconditus, adeoque ad minimum ad 2 gr. infra 0, cum bulbus a 0 hac quantitate distet. Mercurius ab alio hic visus fuit ad — 5, ut mihi memoratus Vander Bild narravit. Si vero comparationis tabellam formemus, habebimus,

|                         | Franeq. | Amst. | Leidæ. | Zwaneburgi. | Wel. |
|-------------------------|---------|-------|--------|-------------|------|
| Die 7 <sup>o</sup> Jan. | — 2     | + 4   | 5      | 6           | — 3  |

Hæ autem observationes omnes, mane hora 7 aut 8 institutæ fuerunt, excepta ea quam in pago Wel, prope Silvam Ducum instituit Rev. Palier: ibi therm. fuit,

|                     |             |                 |
|---------------------|-------------|-----------------|
| h. 7. A. M. ad — 2½ | h. 2. ad 7½ | h. 9. P. M. — 3 |
| 8. . . . — 2        | 6. 0        | 10. . . . 0     |
| 9. . . . 0          | 7. — 1      |                 |
| 10. . . . 1         | 8. 2        |                 |

(Videat. Harlem. Societ. Act. Belg. T. IX. p. 649. Partis III.). Notatum autem est maximum frigus A° 1740, in Hollandia fuisse — 2, ac — 4.

A° 1768. Observationes a meipso institutæ sunt. Die Jan. 3, altitudo maxima, h. 12 ad gr. 13, minima gr. 7; h. P. M. 5. vento N. O. die 4, maxima, 20°, minima 12, vento O. ac Z. O. die 5, maxima 23°, minima 18, h. 11. P. M. vento Z. Z. O; nixit hoc die. Die vero 6, hora 8½ A. M. ther. 3½, Vento Z. O. cœlo sereno: hora 9, ad 6°, h. 11½ ad 6°, h. 11, ad 12; h. 4. P. M. ad 10, hora 10 ad 11, cum valido vento orientali. Si iterum comparationem instituamus, habebimus,

Franeq.

| Franeq. | Amfter. | Zwanenb. | Leidæ.   | Wel.       |
|---------|---------|----------|----------|------------|
| 3½      | 7       | 6 Die 3. | 4        | —3½ Die 3. |
| Die 6.  | Die 4.  | 7 Die 4. | Die 4.   | —1 Die 4.  |
|         |         | 8 6.     | 8 Die 6. | +7 Die 6.  |

Aliis in locis, uti Lipfiæ, Colonia, Regiomonti, &c. mercurium multum infra zero descendisse novellæ publicæ retulerunt. Sane si ad frigoris intensitatem & durationem attendamus, hanc hiemem inter acerbissimas referemus: sed hæc hætenus, tantum enim maximos frigoris gradus adnotare volui.

Verum quæ mense Novembri 1770, hic observavi rariora sunt.

Die Nov. 17, gelu cum nive incepit, vento O. Die 18, h. 8, therm. 27½. Die 19, h. 8. A. M. 24°, hora 2, P. M. 28; h. 5, 19°: h. 10, 16°. vento O, ac O. Z. O. At die 20, h. 7½. therm. 9°. vento Z. Z. O. dein vero celeriter adscendit: nam hora 2, erat jam ad 25°. vento O. Z. O. cœlo sereno: h. 6, ad 32°, vento Z. Z. W. cum nive, hora 10, ad 32°. die 21, h. 10, ad 36°. Nescio an nostris in regionibus, tanti frigoris hoc mense observati dentur exempla. An imminens nix ejus causa exstitit? Si vero comparisonem cum aliis locis instituamus, habebimus,

| Franeq. | Amst. | Zwanenb.    | Leidæ.           | Hag. | Berol. |
|---------|-------|-------------|------------------|------|--------|
| 9       | 22    | 25          | 17               | 21   | 17½    |
|         |       | Die 17, 23. | h. 11, P. M. 36. |      |        |

Maxima mutatio hic fuit 27°. Magnam autem inter loca, haud multum ab invicem diffita, differentiam dari liquet, & sæpe fuit observatum: omnis

tamen a sola thermometrorum situ vario repeti nequit.

Ad hanc frigoris intensitatem accedit, celeremque hanc temperiei mutationem multum superat, quod in vico Tooting, die 22 Nov. 1748, observavit Rev. Miles (Philos. Transact. N° 491. T. XLVI. p. 3.), sc. Die 21 Nov. fuit therm. ad 7° gr. infra 0, seu congelationis punctum. Die 22, h. 4½, A. M. 14½ infra 0. h. 7, gr. 5 infra 0, vento W. ac Z. W. Mane, hora 10, jam pluebat thermom. indicante 5 supra 0, hora 8½, P. M. therm. erat ad 12 supra 0. Unde mutatio fuit gr. 26½. Ait vero Cel. Maty (Jour. Britan. T. V. p. 124.), hoc therm. cum Fahrenheitiano convenire, nisi quod punctum 0 in puncto congelationis fuerit notatum. Unde in scala Fahrenheitiana erunt frigoris gradus hi.

22 Nov. 1748, h. 4½ gr. 17½. h. 7. gr. 27. h. 10, gr. 37. cum pluvia, h. 8½, P. M. gr. 42. Frigus ergo minus eo quod hic observavi.

Franeq. 13 Nov. 1772.

J. H. Van Swinden.

P. S. Anno 1771, die Jan. 13, vidi therm. ad 8 gr. die Feb. 11, ad gr. 13. die Jan. 19, 1772, ad 11°. Verum de his alia opportunitate latius.